ANDREW BARROTT



OREHAM MANOR FARM, OREHAM COMMON, HENFIELD,
WEST SUSSEX, BN5 9SB

Remediation Method Statement

October 2024

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REPORT DATA SHEET

Requirement	**Data**
Report Ref:	574d/PRowePlanning/OrehamManorFarm/RMS
Date	October 2024
Client	Andrew Barrott
Report type	Remediation Method Statement
Purpose	Planning
Revisions	-
Prepared by	Eur Ing Malcolm McKemey BSc (Hons), CEng, CEnv, MICE, MCIWEM, MIEnvSc [redacted] Signed

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1. BACKGROUND

1.1 This report follows the Preliminary Contamination Risk Assessments completed for the site in February 2023 and the Contamination Risk Assessment completed in September 2024 following an intrusive site investigation.

1.2 The Remediation Method Statement details the remediation measures recommended from the results of the site investigations.

2. THE SITE & PROPOSED DEVELOPMENT

2.1 The site sits within the Oreham Manor Farm complex and comprises The Stables residential dwelling and adjacent yard area, the workshop building, adjacent redundant pigsties and derelict land / materials storage to the south. The site lies within a predominately agricultural area with scattered large dwellings to the south of Henfield. The total site area is approximately 0.5 ha. The Ordnance Survey (OS) map reference for the site is TQ 22399 13451. The site elevation is approximately + 20 m OD. See Figure 1.

2.2 The site is accessed via a gravel drive which splits at the entrance, the eastern section leading to the parking area of Oreham Manor Farmhouse.

2.3 It is intended to redevelop the site for a residential land use with gardens, soft landscaping and paved areas. See Figure 2.

3. CONCLUSIONS & RECOMMENDATIONS FROM THE CRA

3.1 The Preliminary Contamination Risk Assessment identified a number of potential sources of contamination at the site and recommended an intrusive site investigation. The intrusive site investigation comprised seventeen trial pits from which thirty-three soil samples were taken for analysis. No groundwater was encountered.

3.2 The trial pits revealed a relatively shallow layer of made ground over dense Weald Clay (bedrock). Some of the made ground appeared stained or was malodorous. The area described as “landfill” was found to comprise inert soils with minimal evidence of contamination.

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3.3 A Contamination Risk Assessment (CRA) report was completed based on the findings of the site investigation. The report conclusions are given below:

i. The site lies on a layer of made ground and/or topsoil underlain by Weald Clay Formation.

ii. The site lies on Unproductive Strata and does not lie within a groundwater source protection zone. The site is not considered to be hydrogeologically sensitive.

iii. The site lies within Flood Zone 1. The site is predominantly at very low risk of surface water flooding, with a small area of medium to high risk adjacent to The Stables.

iv. Oreham Piggeries landfill lies immediately to the south and east of the site. This was an inert waste landfill. No evidence of putrescible or organic material was observed during the excavation of the trial pits. There is not considered to be at significant risk of ground gas.

v. The site is not within a radon affected area and no radon protection measures for new buildings are indicated.

vi Land use history has comprised agricultural land from pre 1873 to circa 1970s (which may have comprised grazing livestock and/or arable farming), and agricultural buildings from circa 1970s to date (which has included use as piggeries and 'light industrial' workshop to the southwest which included vehicle storage and maintenance).

vii. The site investigation, comprising seventeen trial pits, has identified mainly minor – moderate contamination, principally heavy metal and polycyclic aromatic hydrocarbons (PAHs), in the made ground and in the topsoil at the site. The underlying clay was found to be uncontaminated with the exception of the lower samples from TP1 and TP10, although this is suspected to be due to superficial soil mixing at the interface between the made ground and the underlying clay. The made ground sample from TP10 was the most heavily PAH contaminated. TP10 is located in a former pond and it is suspected that the pond was backfilled with material with a high ash or other bonfire residuals content. Asbestos fibre was detected in the upper soil samples at TP3, TP4, TP5, TP6 and TP8.

3.4 The CRA report recommendations are given below:

i. The existing upper soil, whether made ground or topsoil, may be retained beneath permanent hardstanding, buildings and roadways. However, in the proposed garden and soft landscaping areas, the soil should be removed down to the clean underlying clay or to a depth of 0.6 m (whichever is reached first), a permeable geotextile laid, and the soil replaced with clean topsoil imported from an uncontaminated source.

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ii. The made ground in the former pond area (which exhibited the highest PAH concentrations) should be excavated down to the underlying clean clay, stockpiled, subject to Waste Acceptance Criteria (WAC) testing, and disposed of to a suitably licenced landfill. The resulting void may be backfilled with clean soil or crushed recycled concrete, depending on the proposed future use.

iii. The presence of PAHs within the upper and (some) lower layers of soil on the site may affect any new underground plastic (PE and PVC) water supply pipework. If new pipes are to be laid, analysis results should be reviewed against current UKWIR guidance, and barrier pipe may be required.

iv. Evidence that the remediation has been carried out as recommended will need to be kept, including photographs of the work in progress, documentary evidence of the origin of the replacement topsoil and copies of the tickets for any material disposed of off-site. On completion of the works, a completion or verification report should be provided for the benefit of the local planning authority and the house insurers/guarantee providers.

v. Groundworkers engaged in the removal of, or working within, the existing upper soil/made ground should practice appropriate industrial hygiene. Measures should include the wearing of boots, gloves and coveralls, and dust masks on dry days if dust is generated. Eating and smoking in excavations should be avoided.

4. PROPOSED REMEDIATION

4.1 Apart from the area of the former pond, the existing soil can be left in place under buildings and permanent hard standing. Where permanent hardstanding is to be jointed, and there could be some exchange of groundwater between the soil and the surface, an impermeable membrane should be placed under the hardstanding. Where paving is to be permeable, there should be at least one layer of permeable geotextile (Terram 1000 or similar) placed in the underlying construction. Areas for proposed remediation should be marked out and agreed with Horsham District Council on site prior to the commencement of the work.

4.2 For any areas of soft landscaping, gardens or other locations where future site users could have contact with the underlying soil, the made ground should be removed down to the clean underlying clay or to a depth of 0.6 m (whichever is reached first), a permeable geotextile (Terram 1000 or similar approved) laid, and the soil replaced with appropriately certified clean topsoil imported from an uncontaminated source. Laps between sheets of geotextile to be treated as per the manufacturer's recommendations. Where any underlying material is pointed, sharp or likely to deform/pierce the geotextile or membrane, a suitable layer of sand shall be placed to remove this risk. See Figure 3.

4.3 Made ground removed as part of the remediation shall be stockpiled on a hard surface where it cannot mix with any soil subject to remediation, including preventing run off from the stockpile entering the remediated areas. Stockpiles of removed soil shall be subject to Waste Acceptance Criteria (WAC) testing and disposed of appropriately.

4.4 The made ground in the former pond area, which exhibited the highest PAH concentrations, should be excavated (chased out) down to the underlying clean clay, stockpiled, subject to Waste Acceptance Criteria (WAC) testing and disposed of to a suitably licenced landfill. Any resulting void may be backfilled with clean soil or crushed recycled concrete, depending on the proposed future use.

4.5 If, in the course of the remediation work, evidence of contamination not previously identified comes to light, it should be reported to Horsham District Council and an independent examination and assessment should be carried out to identify and recommend any remediation required.

5. REMEDIATION VERIFICATION

5.1 It is essential that evidence is kept to confirm that the remediation has been carried out as recommended or specified. This should include:

- Photographing the remediation work in progress.
- Obtaining independent examination of the work in progress at significant points, such as when soil has been removed and areas are ready to have geotextile placed and to receive clean replacement soil. When remediation work in an area is complete.
- Collecting WAC testing certificates.
- Collecting all tickets for material taken off site (including recording where it has been taken to).
- Collecting delivery tickets for clean topsoil imported to site.
- Providing details of the origin of clean topsoil plus analysis certificates to confirm its suitability.

5.2 On completion of the remediation, a Remediation Verification report should be prepared. This report should provide details of all the remediation carried out and contain the evidence of the work in progress, the import and export of materials with all documentary evidence, photographs, tickets, etc. appended. The report should confirm that the remediation was carried out and successfully completed as recommended and specified.

☆ ☆ ☆ ☆ ☆ ☆ ☆

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FIGURES

FIGURE 1: **Site Location Plan**
FIGURE 2: **Proposed Remediation Plan**
FIGURE 3: **Remediation Details**



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Scale as shown

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Figure 1: Site Location

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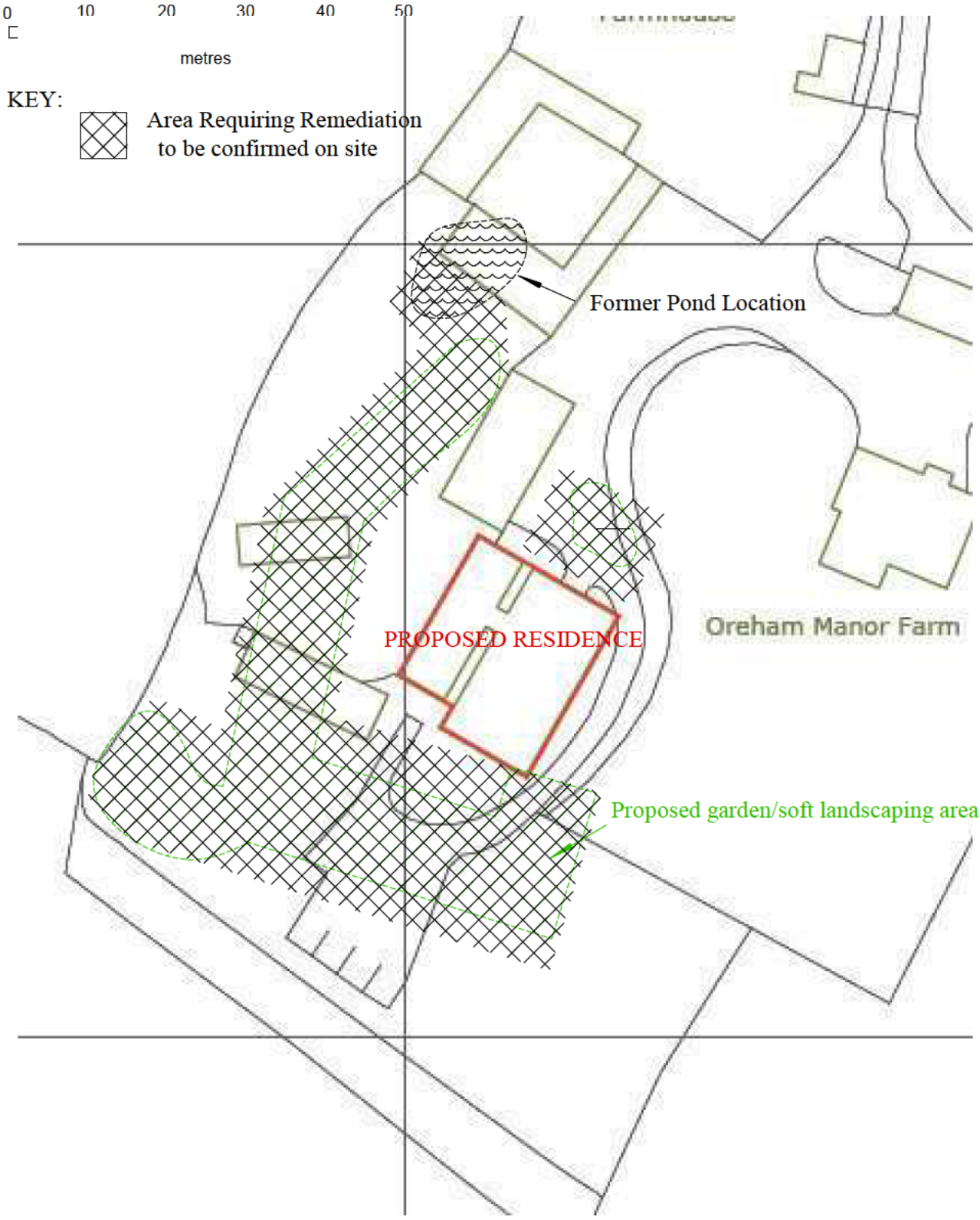

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Figure 2: Proposed Development and Remediation Areas

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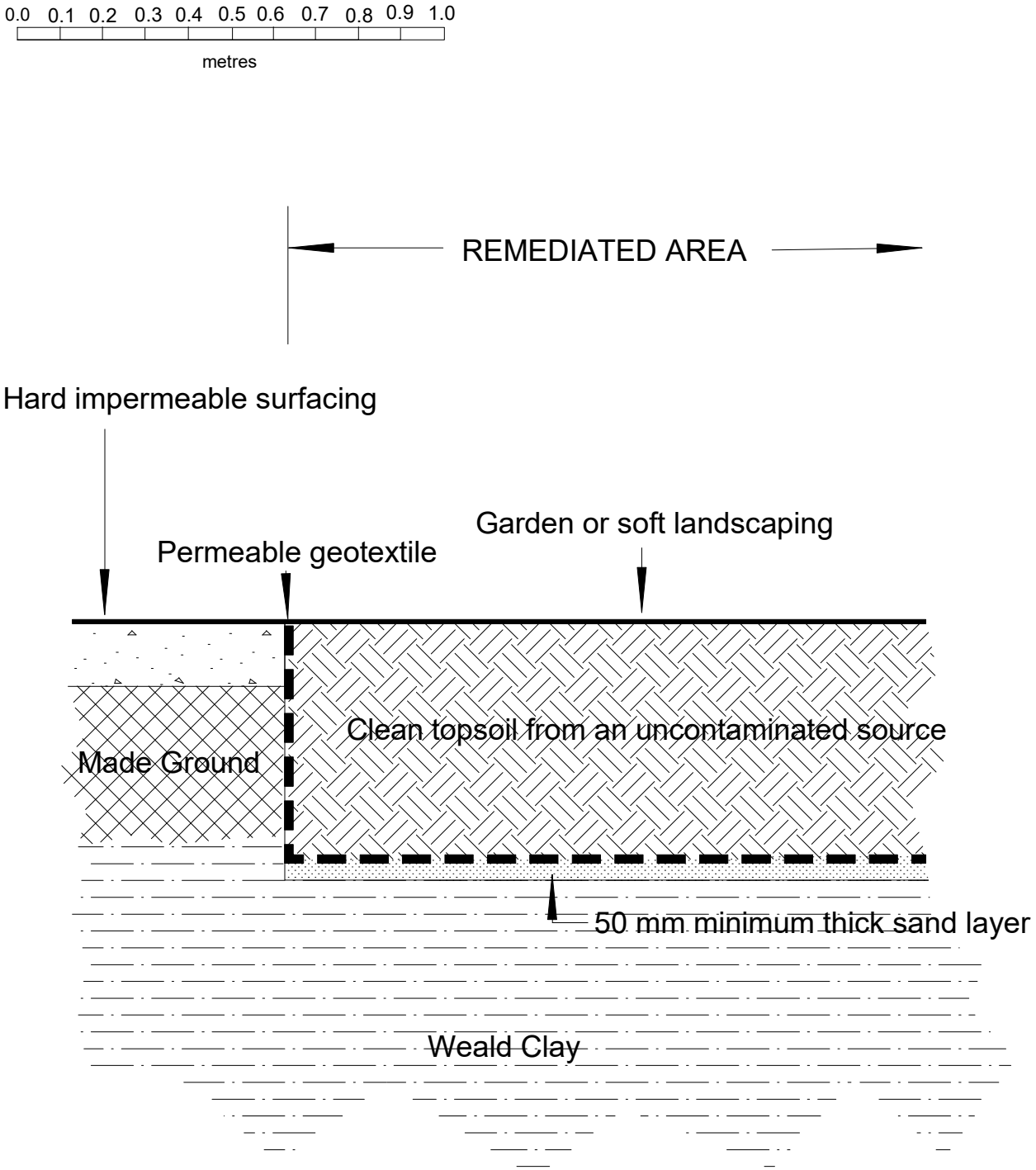

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Figure 3: Remediation Details

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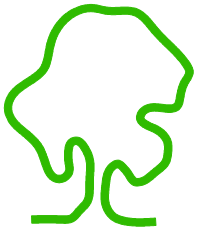

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